SCIENCE

FRIDAY, NOVEMBER 23, 1900.

CONTENTS:

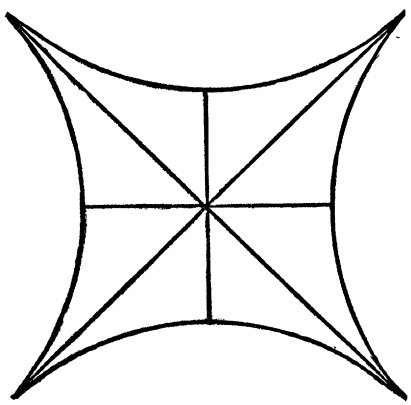
MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

THE ASSOCIATION OF AMERICAN AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS.

THE fourteenth annual convention of the Association of American Agricultural Colleges and Experiment Stations was held at New Haven and Middletown, Connecticut, November 13th–15th. Most of the sessions were held in the assembly room of the Sheffield Scientific School of Yale University, where the delegates had the pleasure of meeting President Hadley, who delivered a short address. Professor W. H. Brewer, of the Sheffield Scientific School, and Dr. E. H. Jenkins, of the Connecticut Experiment Station, actively promoted the comfort of the delegates and the business of the convention. The Association went to Connecticut this year especially to celebrate the twenty-fifth anniversary of the founding of the Connecticut State Agricultural Experiment Station. The colleges and stations of all sections of the country were represented.

The report of the Executive Committee pointed out that Congress had recognized the importance of the land-grant colleges to the country in a notable way during the past year by providing that when the proceeds of the sale of public lands were insufficient to meet the annual appropriations for these institutions, the deficiency should be met by direct appropriations from the National Treasury.

Squares have consequently the following form:



Is this constant *for us* half the earth's axis (as a consequence of which each line drawn in the universe from one fixed star to another, which are ninety degrees apart from one another, would be a tangent of the earth-sphere), so is it in relation to the spaces occurring in daily life infinitely great.

The Euclidean geometry holds good only under the presupposition that the constant is infinitely great. Only then is it true that the three angles of every triangle are equal to two right angles; also this can be easily proved if one takes as given the proposition that the constant is infinitely great.

Such is the brief declaration of independence of this hero.

Nor were Schweikart's courage and independence without farther issue. Under his direct influence his own nephew, Taurinus, developed the real non-Euclidean trigonometry and published it in 1825, with successful applications to a number of problems.

Moreover, this teaching of Schweikart's made converts in high places.

In the letter of Bessel to Gauss of 10 Feb., 1829 (p. 201), he says: "Through that which Lambert said, and what Schweikart disclosed orally, it has become clear to me that our geometry is incomplete, and should receive a correction, which is hypothetical and, if the sum of the angles of the plane triangle is equal to a hundred and eighty degrees, vanishes.

"That were the *true* geometry, the Euclidean the *practical*, at least for figures on the earth."

The complete originality and independence of Schweikart and of Lobachévski are recognized as a matter of course in the correspondence between Gauss and Gerling, who writes, p. 238: "The Russian steppes seem, therefore, indeed a proper soil for these speculations, for Schweikart (now in Königsberg) invented his 'Astral-Geometry' while he was in Charkow."

This fixes the date of the first conscious creation and naming of the non-Euclidean geometry as between 1812 and 1816.

Gauss adopts and uses for himself this first name, Astral-Geometry (1832, p. 226; 1841, p. 232).

At length the true prince comes. On February 14, 1832, Gauss receives the profound treatise of the young Bolyai János, the most marvellous two dozen pages in the history of thought. Under the first impression Gauss writes privately to his pupil and friend Gerling of the ideas and results as 'mit grosser Eleganz entwickelt.' He even says 'I hold this young geometer von Bolyai to be a genius of the first magnitude.'

Now was Gauss's chance to connect himself honorably with the non-Euclidean geometry, already independently discovered by Schweikart, by Lobachévski, by Bolyai János.

Of two utterly worthless theories of parallels Gauss had already given extended notices in in the *Göttingische gelehrte Anzeigen* (this volume, pp. 170–174 and 183–185).

To this marvel of János, Gauss vouchsafed never one printed word.

As Staeckel gently remarks, this certainly contributed thereto, that the worth of this mathematical gem was first recognized when John had long since finished his earthly career.

The 15th of December, 1902, will be the centenary of the birth of Bolyai János.

Should not the learned world endeavor to arouse the Magyars to honor Hungary by honoring then this truest genius her son?

George Bruce Halsted.
Austin, Texas.

SCIENTIFIC JOURNALS AND ARTICLES.

In the July number of the *American Journal of Insanity*, Dr. J. G. Rogers, of Indiana, pre-

sents an article entitled 'A Century of Hospital Building for the Insane,' which is worthy of much attention. He favors the erection of buildings which will permit classification into separated groups, not less than sixteen and twenty are preferable. The common dining-hall and the common kitchen are commended on the score of economy. Details follow in regard to methods and materials of construction, lighting, ventilation, etc.

Special provision should be made for certain classes of the insane, such as farm colonies for a working class, separate buildings for tubercular patients and infirmary buildings for the harmless and helpless.

Dr. C. A. Good, of Michigan, gives a 'Review of Chronic Progressive Chorea (Huntington's), with Report of a Case.' In the case reported excellent lithographs are given of microscopic sections which demonstrate degenerative changes in the muscles; pigment granules within the cells of the posterior root ganglion; and cysts and cell degeneration in the cerebral cortex.

Dr. H. J. Berkley, of Baltimore, reports a fatal case of dementia paralytica from a multiple thrombosis of bacterial origin. The theory is advanced that the thrombosis of the cerebral vessels was due to changes in the blood induced by toxic products, as well as from the presence of bacteria in such numbers as to form a nidus for a blood coagulation.

Dr. C. W. Pilgrim, of Poughkeepsie, in a paper entitled 'The Study of a Year's Statistics' gives interesting conclusions respecting patients under treatment at the Hudson River State Hospital. Of the patients admitted during the year, 41.5 per cent. presented symptoms of melancholia; 32.5 per cent. presented symptoms of mania; 20 per cent. were cases of dementia and 6 per cent. had dementia paralytica. Among those admitted 30 per cent. recovered during the year or had prospects of recovery; 12 per cent. were improved; 11 per cent. died and 47 per cent. were chronic cases when they came to the hospital and probably will die uncured. Some interesting statistics are given concerning the months during which deaths were most frequent: 61 per cent. of deaths occurred between October and April and 39 per cent. only between April and October. The 'hour of death' showed that 26 per cent. died between midnight and 6 A. M.; 19 per cent. between 6 A. M. and noon; 31 per cent. between noon and 6 P. M., and 24 per cent. between 6 P. M. and midnight.

Dr. A. H. Harrington, of Danvers, Massachusetts, believes that 15 per cent. of all deaths in hospitals for the insane in the United States are due to tuberculosis, and declares it to be "the duty of the State to provide its hospitals with the means of taking care of its tuberculous insane in such a manner as shall prevent the infection of the non-tubercular, and also give the necessary care to those suffering from the disease."

Dr. C. P. Bancroft, of Concord, New Hampshire, discusses the trial and conviction of Bradford P. Knight, of Augusta, Maine, who committed an atrocious murder while evidently insane, and who, although declared guilty of murder in the first degree, was prior to sentence transferred to a hospital for the insane. The jury returned the only possible verdict under the explicit charge of the presiding judge, which was based upon the erroneous idea that legal insanity differs in some mysterious manner from medical insanity; in other words, that the presence of insanity does not necessarily preclude responsibility for actions.

Dr. P. M. Wise, of New York, traces the steps which have been taken in the creation and development of the Pathological Institute of the New York State hospitals, and mentions the difficulties which have been encountered in the prosecution of the work.

'Suicide and its Increase' is the title of a paper by G. Styles, of Michigan, which presents the following suggestive statistics:

Forty years ago it was shown that while only 4 in every 10,000 persons rated as paupers died by their own hands, nearly 7 coachmen or other servants, 5 bankers or professional men, 7.8 dragoons, 7.43 tailors, shoemakers and bakers, while the trades making the best showing (1.33) were carpenters, butchers and masons. Of the countries concerned, Sweden has the lowest average, only 1 to 92,000; Russia, 1 to 35,000; the United States, 1 to 15,000; Saxony, 1 to 8,446; while in the cities of St. Petersburg

and London, England, the proportion was 1 to 21,000. Taking the last fifty years, we find that for every 100,000 inhabitants of France there were, from 1841–45, 9 suicides; from 1846–50, 10; from 1861–70, 13; from 1871–75, 15; from 1876–80, 17; for 1889, 21; for 1893, 22; for 1894, 26. Durkheim shows that from 1826 to 1890 the number of suicides in Belgium increased 72 per cent.; in Prussia, 411 per cent.; in Austria, 238 per cent.; in France, 318 per cent.; in Saxony, 212 per cent., while in Sweden and Denmark the increase has been the lowest, viz., 72 and 35, respectively. That religion seems to wield an important influence in connection with self-murder is evident from the fact that in Roman Catholic communities suicide is less prevalent."

The *Journal of Physical Chemistry*, November, 'On the Solubility of Manganous Sulphate,' by F. G. Cottrell. A determination of the solubility of the hydrates containing 1, 4, 5 and 7 molecules of water of crystallization—no other hydrates were found. The salt of commerce is sometimes that with four, sometimes that with five molecules of water. 'Catalysis and Chemical Energy,' by Oscar Loew. In catalysis "it is the oscillations of the free heat energy of the atmosphere which are modified by certain peculiarities of the platinum atom in such a manner that they can pass still more easily than they usually do into the oscillations of chemical energy. The catalytic action of certain organic compounds is due to the chemical energy of labile atoms." 'The Reaction between Chloroform and Potassium Hydroxide,' by A. P. Saunders. In all probability the action proceeds in stages, in each of which only two molecules react together. 'Vapor-Pressure Relations in Mixtures of Two Liquids, III,' by A. Ernest Taylor. Attention may well be called to the fact that to almost every article contained in this *Journal* since its inception is appended a brief summary of the results obtained and conclusions drawn. It would be a great advantage if this practice prevailed in all our scientific journals.

The Medical Society of New York University has planned the establishment of a quarterly journal to be called *The New York University Bulletin of the Medical Sciences* and to be edited by a committee of the Society under the business management to be designated by the University. The contents of the Bulletin are to be: (1) Original articles directly contributed to the bulletin. (2) Abstracts or *extenso* reproductions of articles originally published elsewhere. (3) Short communications made at the meetings of the Medical Society. (4) Brief minutes of those meetings. (5) Reports on methods devised or tested in the departments of the medical college. (6) A reference list of publications by those connected with the medical college.

SOCIETIES AND ACADEMIES.

NATIONAL ACADEMY OF SCIENCES.

At the winter meeting of the National Academy of Sciences, held at Brown University, Providence, R. I., on November 13, 14 and 16, the following program was presented:

I. 'Investigations of Light and Electricity with the Aid of a Battery of Twenty Thousand Cells,' by J. Trowbridge.

II. 'Progressive Evolution of Characters in the Young Stages of Cephalopods,' by Alpheus Hyatt.

III. 'Descriptive Method of Presenting the Phenomena of the Cycle of Evolution among Cephalopods,' by Alpheus Hyatt.

IV. 'The Porous Cup Voltameter,' by T. W. Richards.

V. 'An Account of the Study of Growing Crystals by Instantaneous Microphotography,' by T. W. Richards.

VI. 'Stereographic Projection and Some of its Possibilities from a Graphical Standpoint,' by S. L. Penfield.

VII. 'On the Development of the Pig,' by C. S. Minot.

VIII. 'Normal Plates illustrating the Development of the Rabbit and the Dogfish,' by C. S. Minot.

IX. 'Note on the Energy of Recent Earthquakes,' by T. C. Mendenhall.

X. 'Spectrum of Sodium in a Magnetic Field,' by A. A. Michelson.

XI. 'A Report of the Spectrum Work carried on with the Aid of a Grant from the Bache Fund,' by H. A. Rowland.

XII. 'On the Explanation of Inertia and Gravitation by Means of Electrical Phenomena,' by H. A. Rowland.

XIII. 'Distribution and Phylogeny of Limulus,' by A. S. Packard.